

REMARKS

With respect to Detailed Action Item 1:

The Abstract has been amended to address the Examiner's concerns

With respect to Detailed Action Item 2:

Applicants acknowledge the Examiner's concerns regarding Figures 1 and 2. A substitute sheet with Figure 1 designated as "PRIOR ART" is included. Applicants respectfully disagree that Figure 2 be designated as prior art. Elements that include patentable elements are depicted. In this instance, for example controller 18 performs different methodologies than the prior art and therefore should not be depicted as such.

With respect to Detailed Action Item 4:

Claims 1 – 33 are pending. Claims 3, 5, 11, 13, 20, 22, 28, and 30 are objected to. The explanation provided in the Office Action states that: "Claims 3, 5, 11, 13, 20, 22, 28, and 30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, *second paragraph*, (italics provided) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Applicants respectfully direct the Examiner's attention to note that no 35 U.S.C. 112, *second paragraph* objections or rejections have been identified. Applicants respectfully request clarification as to the Examiner's intent. To facilitate prosecution, Applicants will presume that the intent was to indicate that these claims would be allowable if rewritten in independent form including the limitations of the base claim and any intervening claims from which they depend. Claims 1, 2, 4, 6-10, 12, 14-19, 21, 23-27, 29, and 31-33 stand rejected

Claim Rejections - 35 U.S.C. §102(b)

Claims 1, 2, 4, 6-10, 12, 14-19, 21, 23-27, 29, and 31-33 stand rejected under 35 U.S.C. §102(b) as being anticipated by Collier-Hallman et al. (US-6,002,226). Hereinafter denoted as Collier-Hallman '226.

With regard to Claims 1, 9, 18, and 26, the explanation in the Office Action states that Collier-Hallman '226 discloses:

"a method of determining a current in an electric machine coupled to a polyphase bus, wherein the method comprises detecting a rotational position of the electric machine with a position encoder coupled to the electric machine (Column 3, lines 12 and 130, controlling an inverter comprising a plurality of switching

devices, the inverter having an input coupled to a direct current bus (Column 4, lines 14 -27; Column 5, lines 1 -31), and an output coupled to the polyphase bus, the inverter responsive to commands from a controller coupled to the inverter and to the position encoder (Figs. 3 and 4; Column 4, lines 27 -32), measuring a current from the direct current bus, and capturing the current at a predefined interval of time (Column 3, lines 46- 63).”

Applicants respectfully contend that the explanation in the Office Action mischaracterizes the teachings of Collier-Hallman ‘226. To anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. Lewmar Marine Inc. v. Barient, Inc., 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements “arranged as in the claim.” Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. Titanium Metals Corp. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

With regard to Claims 1, 9, 18, and 26, Applicants respectfully contend that Collier-Hallman ‘226 does not teach or disclose each element of the invention “arranged as in the claim”. Specifically, Collier-Hallman ‘226 does not teach or disclose, “A method of determining a current in an electric machine coupled to a polyphase bus.” In addition, Collier-Hallman ‘226 does not teach or disclose, “measuring a current from said direct current bus; and/or “capturing said current at a predefined interval of time”. While Collier-Hallman ‘226 does include current sensing, it specifically teaches that the current is the “output motor current signal I_s ”. Therefore, because Collier-Hallman ‘226 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants’ Claims. Thus, Claims 1, 9, 18, and 26 are allowable, the rejections are improper and they should be withdrawn.

Moreover, in view of the above discussion, Claims 2, 4, 6 – 8, 10, 12, 14 - 17, 19, 21, 23 – 25, and 27, 29, 31 – 33 depend from Claims 1, 9, 18, and 26 respectively, whether directly or indirectly, and include all of the corresponding limitations thereof. Claims 1, 9, 18, and 26 are not taught by Collier-Hallman ‘226, therefore, Claims 2, 4, 6 – 8, 10, 12, 14 - 17, 19, 21, 23 – 25, and 27, 29, 31 – 33 cannot be taught by Collier-Hallman ‘226 either. Thus, Claims 2, 4, 6 – 8, 10, 12, 14 - 17, 19, 21, 23 – 25, and 27, 29, 31 – 33 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 2, 10, 19, and 27, the explanation in the Office action states that:

“Collier-Hallman et al. disclose a method comprising all of the elements described above, further comprising determining a set of values representative of a magnitude of currents on each phase of the polyphase bus (Column 8, lines 16-27).”

With regard to Claims 2, 10, 19, and 27, Applicants respectfully contend that Collier-Hallman ‘226 does not teach or disclose each element of the invention “arranged as in the claim”. Specifically, Collier-Hallman ‘226 does not teach or disclose, “determining a set of values representative of a magnitude of currents on each phase of the polyphase bus,” as suggested by the explanation in the Office Action. The Examiner relies upon Column 8, lines 16-27 for support regarding this rejection. Observation of Column 8, lines 16 – 27 upon which the Examiner relies provides no teaching that the motor current signal I_s is representative of a magnitude of currents **on each phase** of the polyphase bus. In fact, Col. 8, lines 22 – 29 makes it evident that the voltage measured across current sense resistor R_s is not indicative of the current on each phase. Collier-Hallman includes no additional teaching as to how motor current I_s is correlated to the current of each phase. Therefore, because Collier-Hallman ‘226 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants’ Claims. Thus, Claims 2, 10, 19, and 27 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 4, 12, 21, and 29, the explanation in the Office action states that:

“Collier-Hallman et al, disclose a method comprising all of the elements described above. wherein they further disclose that the motor current is directly related to torque current (Column 1, lines 39-42) and since the reference teaches obtaining a value representing motor current it therefore teaches obtaining a value representing torque current.”

With regard to Claims 4, 12, 21, and 29, Applicants respectfully contend that Collier-Hallman ‘226 does not teach or disclose each element of the invention “arranged as in the claim”. Specifically, Applicants respectfully contend that the explanation in the Office Action mischaracterizes the teachings of Collier-Hallman ‘226. Collier-Hallman ‘226 does not teach or disclose, “that the motor current is directly related to torque

current” as suggested (Column 1, lines 39-42). Collier-Hallman ‘226 merely notes that current disturbances in the inverter result in disturbances in the average motor current and thus a variation in torque. This is not at all equivalent to “determining a value representative of a torque current from said current” as claimed. Collier-Hallman ‘226 does not teach anything with respect to a torque current i.e., the torque producing component of the current. Therefore, because Collier-Hallman ‘226 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants’ Claims. Thus, Claims 4, 12, 21, and 29 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 7,15,24, and 32, the explanation in the Office action states that:

Collier-Hallman et al. disclose a method comprising all of the elements described above, wherein the electric machine is a permanent magnet DC brushless motor characterized by a sinusoidal magnetic field excitation, wherein it is inherent that a multiplicity of brushless motors are characterized by a sinusoidal magnetic field excitation (Column 1, lines 12- 27).

With regard to Claims 7,15,24, and 32, Applicants respectfully contend that Collier-Hallman ‘226 does not teach or disclose each element of the invention “arranged as in the claim”. Specifically, Collier-Hallman ‘226 does not teach or disclose, “...a permanent magnet DC brushless motor **characterized by a sinusoidal magnetic field excitation.**” Applicants respectfully contend that the explanation in the Office Action mischaracterizes the teachings of Collier-Hallman ‘226. Collier-Hallman ‘226 at Column 1, lines 12— 27 does not teach anything with respect to the type of magnetic field excitation. In fact, Collier-Hallman ‘226 is silent as to the type of magnetic field excitation. The explanation further states that “it is inherent that a multiplicity of brushless motors are characterized by a sinusoidal magnetic field excitation.” A sinusoidal magnetic field is not inherent in every brushless DC motor. “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is **necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency however, may not be established by probabilities or possibilities. The mere fact that a certain thing **may** result from a give set of circumstances **is not sufficient.**’ ” (Emphasis Added) In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-1 (Fed Cir. 1999). MPEP §2112. Applicants contend that

the explanation in the Office Action stating that: “it is inherent that a multiplicity of brushless motors are characterized by a sinusoidal magnetic field excitation.” mischaracterizes the teachings of Collier-Hallman ‘226. and further, is not supported by any evidence to indicate that the missing descriptive matter is **necessarily present** in the teachings thereof.

Therefore, because Collier-Hallman ‘226 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants’ Claims. Thus, Claims 7,15,24, and 32 are allowable, the rejections are improper and they should be withdrawn.

With regard to Claims 8, 17, 25, 33, the explanation in the Office action states that:

Collier-Hallman et al. disclose a method comprising all of the elements described above, wherein the capturing is characterized by sampling a signal value representative of the current and the sampling is controlled by the controller to be operative only at the predefined interval of time (Column 3, lines 46 — 63).

With regard to Claims 8, 17, 25, 33, Applicants respectfully contend that Collier-Hallman ‘226 does not teach or disclose each element of the invention “arranged as in the claim”. Specifically, Collier-Hallman ‘226 does not teach or disclose, “... sampling is controlled by the controller to be **operative only at the predefined interval of time.**” Applicants respectfully contend that the portions of Collier-Hallman ‘226 relied upon i.e., Column 3, lines 46 — 63, do not teach or disclose sampling...operative only at the predefined interval of time. Therefore, because Collier-Hallman ‘226 does not teach or disclose an element of the claimed invention it cannot anticipate Applicants’ Claims. Thus, Claims 8, 17, 25, 33 are allowable, the rejections are improper and they should be withdrawn.

The arguments here presented are made for the purposes of better defining the invention, rather than to overcome the rejections for patentability. The claims were not amended to overcome the prior art and therefore, no presumption should attach that either the claims have been narrowed over those earlier presented, or that subject matter or equivalents thereof to which the Applicants are entitled has been surrendered. Support for these amendments can be found in the specification and claims as originally filed. No

new matter has been introduced by these amendments. Allowance of the claims is respectfully requested in view of the amendments and following remarks.

It is believed that the foregoing remarks are fully responsive to the Office Action and that the claims herein should now be allowable to the Applicants. In the event the Examiner has any queries regarding the instantly submitted response, the courtesy of a telephone conference to discuss any matters in need of attention is respectfully requested.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully Submitted,

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